

CLAIMS

We claim:

- 1        1.    A circuit comprising:
  - 2            a communication channel having a first and second end;
  - 3            a current mode logic transmitter coupled to the first end
  - 4 of the communication channel;
  - 5            a low voltage differential signal transmitter coupled to or
  - 6 couplable to the first end of the communication channel;
  - 7            a current mode logic receiver coupled to the second end of
  - 8 the communication channel; and
  - 9            a low voltage differential signal receiver coupled to or
  - 10 couplable to the second end of the communication channel while
  - 11 the current mode logic receiver remains coupled to the second
  - 12 end of the communication channel.
- 1        2.    The circuit of Claim 1, wherein the communication
- 2 channel comprises a differential printed circuit board trace or
- 3 a differential transmission line.
- 1        3.    The circuit of Claim 1, further comprising a pair of
- 2 diodes, disposed between the current mode logic transmitter and
- 3 the communication channel, adapted to couple the current mode
- 4 logic transmitter to the first end of the communication channel.

1        4.    The circuit of Claim 3, wherein the diodes comprise  
2 printed circuit board diodes having a low capacitance and a low  
3 forward voltage drop.

1        5.    The circuit of Claim 1, further comprising a pair of  
2 diodes, disposed between the current mode logic transmitter and  
3 the communication channel, adapted to couple the current mode  
4 logic transmitter to the first end of the communication channel,  
5 wherein the diodes are forward biased when the current mode  
6 logic transmitter is transmitting and are reverse biased when  
7 the low voltage differential signal transmitter is transmitting.

1        6.    The circuit of Claim 1, wherein the low voltage  
2 differential signal transmitter and the low voltage differential  
3 signal receiver are electrically isolated from the communication  
4 channel when the current mode logic transmitter is transmitting.

1        7.    The circuit of Claim 1, wherein the current mode logic  
2 receiver provides a termination impedance for the communication  
3 channel when the low voltage differential signal transmitter is  
4 transmitting.

1        8.    The circuit of Claim 1, further comprising a switch  
2 adapted to couple a power supply voltage to resistors of the  
3 current mode logic receiver when the current mode logic  
4 transmitter is transmitting.

1           9.    A communication system comprising:  
2           a communication channel having a first and second end;  
3           a current mode logic transmitter;  
4           a first and second diode coupling the current mode logic  
5 transmitter to the first end of the communication channel;  
6           a low voltage differential signal transmitter coupled to  
7 the first end of the communication channel;  
8           a low voltage differential signal receiver coupled to the  
9 second end of the communication channel; and  
10          a current mode logic receiver coupled to the second end of  
11 the communication channel.

1           10.   The communication system of Claim 9, wherein the first  
2 and second diodes are forward biased when the communication  
3 channel is carrying current mode logic signals and reverse  
4 biased when the communication channel is carrying low voltage  
5 differential signals.

1           11.   The communication system of Claim 9, wherein the  
2 current mode logic receiver is adapted to provide a termination  
3 impedance for the communication channel when the communication  
4 channel is carrying low voltage differential signals.

1        12.    The communication system of Claim 9, wherein the low  
2 voltage differential signal transmitter and the low voltage  
3 differential signal receiver are electrically isolated from the  
4 communication channel when the communication channel is carrying  
5 current mode logic signals.

1        13.    The communication system of Claim 9, further  
2 comprising a switch adapted to couple a power supply to at least  
3 one resistor of the current mode logic receiver, wherein the  
4 switch couples the power supply to the at least one resistor of  
5 the current mode logic receiver when the communication channel  
6 is to carry current mode logic signals.

1        14.    The communication system of Claim 13, wherein the  
2 switch decouples the power supply from the at least one resistor  
3 of the current mode logic receiver when the communication  
4 channel is to carry low voltage differential signals.

1           15. A method of sharing a communication channel, the  
2 method comprising:  
  
3           providing a current mode logic transmitter and receiver and  
4 a low voltage differential signal transmitter and receiver which  
5 are couplable or coupled to the communication channel;  
  
6           applying power to at least one internal resistor of the  
7 current mode logic receiver when the communication channel is to  
8 carry current mode logic signals;  
  
9           removing power from the at least one internal resistor of  
10 the current mode logic receiver when the communication channel  
11 is to carry low voltage differential signals, wherein the  
12 current mode logic receiver provides a termination impedance  
13 with the at least one internal resistor for the communication  
14 channel when the communication channel is to carry low voltage  
15 differential signals; and  
  
16           isolating electrically the low voltage differential signal  
17 transmitter and receiver when the communication channel is to  
18 carry current mode logic signals.

1           16. The method of Claim 15, further comprising providing a  
2 pair of diodes in series between the current mode logic  
3 transmitter and the communication channel, wherein the diodes  
4 are forward biased when the communication channel carries  
5 current mode logic signals and the diodes are reverse biased  
6 when the communication channel carries low voltage differential  
7 signals.

1        17.    The method of Claim 15, wherein the applying power and  
2    the removing power from the at least one internal resistor of  
3    the current mode logic receiver is controlled through a switch  
4    external to the current mode logic receiver.

1        18.    The method of Claim 15, wherein termination resistors  
2    within the low voltage differential signal receiver are not used  
3    when the communication channel carries low voltage differential  
4    signals.

1        19.    The method of Claim 15, wherein the termination  
2    impedance is 100 ohms.